CLAIMS

What is claimed is:

1. A gas turbine driven oil lifting device for increasing production of oil over a specified time period comprising:

a production column-casing consisting of a tubing connected to a gas turbine having two opposing ends defined by upper and lower portions, all positioned within the casing;

the gas turbine has a turbine inlet and a turbine outlet positioned near its upper end and said gas turbine also has a turbine inlet and a turbine outlet near its lower end, all positioned within said casing; within said upper end outlet and lower end inlet is a rotor assembly for rotation of a fluid in a directionally-oriented flow;

the casing is separated into two parts by a bypass packer, which is coupled to an end of the gas turbine, so as to position the entire gas turbine and tubing within the part above the bypass packer; within said tubing and positioned above said gas turbine is a check valve;

fixed to said tubing is a plurality of spaced-apart spindle valves all positioned on the tubing and positioned above the check valve, with a bottom-most spindle valve having the lowest opening pressure and positioned nearest the check valve, and an upper-most spindle valve having the greatest opening pressure; and

a supply tube to the gas turbine is fixedly-positioned along the tubing connected to the gas turbine near the upper end gas turbine inlet with a second check valve installed at the gas turbine outlet near the lower end.

2. The gas turbine driven oil lifting device according to claim 1 wherein there are four spindle valves spaced apart and positioned on the tubing and each valve has a stepped increased opening pressure beginning from the bottom-most valve closest to the gas turbine to the upper-most valve farthest away from the gas turbine.

3. The gas turbine driven oil lifting device according to claim 1 wherein the supply tube is fixed along the tubing by a pair of stabilizing collars.

4. The gas turbine driven oil lifting device according to claim 1 wherein the bypass packer and the first check valve hermetically separate the two parts of the casing.

5. The gas turbine driven oil lifting device according to claim 3 wherein the supply tube ends at a flexible tube, which is connected with the gas turbine at an inlet near the upper end of the turbine.

6. The gas turbine driven oil lifting device according to claim 1 wherein the second check valve is installed at the turbine outlet, preventing the entry of fluid in the turbine during the well completion process.

7. The gas turbine driven oil lifting device according to claim 1 wherein the first check valve prevents return of oil through the turbine to the lower part of the casing below the bypass packer.

8. A process of adjusting a gas turbine driven oil lifting device, where said device consists of a production column-casing consisting of a tubing connected to a gas turbine having two opposing ends defined by upper and lower portions, all positioned within the casing, with the gas turbine having a turbine inlet and a turbine outlet positioned near its upper end and said gas turbine also having a turbine inlet and a turbine outlet near its lower end, and within said upper end outlet and lower end inlet is a rotor assembly for rotation of a fluid in a directionally-oriented flow, all positioned within said casing, with the casing separated into two parts by a bypass packer, and with a plurality of spaced-apart spindle valves all fixed to and positioned along the tubing and above the check valve, with a bottom-most spindle valve positioned nearest the check valve and an upper-most spindle valve having the greatest opening pressure; and with a supply tube to the gas turbine that is fixedly-positioned along the tubing connected to the gas turbine near the upper end gas turbine inlet with a second check valve installed at the gas turbine outlet near the lower end; said process comprising:

adjusting the opening pressure of the bottom-most valve, which has the lowest opening pressure; and

adjusting the opening pressure of the next bottom-most valve, which has a slightly higher opening pressure.

9. The process according to claim 8 wherein there are four spindle valves spaced apart and positioned on the tubing and having stepped increasing opening pressure from the bottom-most valve closest to the gas turbine to the uppermost valve farthest away from the gas turbine; where the process further comprises:

adjusting the bottom-most spindle valve;

adjusting the next bottom-most spindle valve;

adjusting the third bottom-most spindle valve; and

adjusting the upper-most spindle valve.

10. The process according to claim 8 further comprising adjusting of opening pressure of the bottom-most spindle valve, next to the turbine, under constant pressure of gas from the surface, and adjusting the difference between the turbine inlet and outlet pressures, and adjustment of flow through bottom-most valve and adjusting the flow of gas through the turbine over a specified period of time.

11. A method of use of a gas turbine driven oil lifting device consisting of a production column-casing consisting of a tubing connected to a gas turbine having two opposing ends defined by upper and lower portions all positioned within the casing, with the gas turbine having a turbine inlet and a turbine outlet positioned near its upper end, and said gas turbine also having a turbine inlet and a turbine outlet near its lower end, and within said upper end outlet and lower end inlet is a rotor assembly for rotation of a fluid in a directionally-oriented flow, all positioned within said casing, with the casing separated into two parts by a bypass packer, and with a plurality of spaced-apart spindle valves all fixed to and positioned along the tubing and above the check valve, with a bottom-most spindle valve positioned nearest the check valve and an upper-most spindle valve having the greatest opening pressure, and with a supply tube to the gas turbine that is fixedly-positioned along the tubing connected to the gas turbine near the upper end gas turbine inlet with a second check valve installed at the gas turbine outlet near the lower end;

said method comprising the utilization of the device for lifting oil lifting by allowing operation of the turbine at a high velocity of rotation of a plurality of blades of the rotor assembly resulting in a large amount of oil lifted in a short period of time and generation of a negative pressure area in the part of the casing below the bypass packer after the termination of the turbine operation and closing of the second check valve.

12. A method of use of a gas turbine driven oil lifting device consisting of a production column-casing consisting of a tubing connected to a gas turbine having two opposing ends defined by upper and lower portions all positioned within the casing, with the gas turbine having a turbine inlet and a turbine outlet positioned near its upper end and said gas turbine also having a turbine inlet and a turbine outlet near its lower end, and within said upper end outlet and lower end inlet is a rotor assembly for rotation of a fluid in a directionally-oriented flow, all positioned within said casing, with the casing separated into two parts by a bypass packer, and with a plurality of spaced-apart spindle valves all fixed to and positioned along the tubing and above the check valve, with a bottom-most spindle valve

positioned nearest the check valve and an upper-most spindle valve having the greatest opening pressure, and with a supply tube to the gas turbine that is fixedly-positioned along the tubing connected to the gas turbine near the upper end gas turbine inlet with a second check valve installed at the gas turbine outlet near the lower end;

said method of use comprising utilizing the device for recovery of liquids from liquid-bearing geological deposits having deposit pressure insufficient for natural flow.